State of Oregon Department of Environmental Quality

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Response to Comments

Owens-Brockway Glass Container Inc.
Title V Permit 26-1876 renewal

Public Questions/Comments and DEQ Response

This document summarizes comments and questions DEQ received during the public hearing and comment period for Owens-Brockway's Title 5 permit renewal. The DEQ's response to comments combines similar topics and comments to minimize repetition. DEQ responses do not address public comments relating to other facilities. Some of the comments are verbatim, combined, or paraphrased with similar comments.

Earthjustice represents the following groups:

- The Cully Air Action Team is an organization of community members from Portland's Cully neighborhood that focuses on addressing ongoing air pollution and toxicity in that area.
- Oregon Environmental Council is an organization that works to safeguard clean air and water in Oregon.
- Portland Clean Air is an organization that works to address industrial pollution in Multnomah and Washington Counties.
- Verde is a non-profit organization based in Portland's Cully neighborhood that serves communities by building environmental wealth through social enterprise, outreach, and advocacy.

Comments provided by Earthjustice were comprehensive and they effectively encompass all the other comments submitted by the public during the public hearing and comment period:

1. **All Public Comments relating to air toxics and their health effects**

DEQ Response to all comments relating to Air Toxics: The Environmental Quality Commission (EQC) adopted the Cleaner Air Oregon (CAO) rules in November 2018. The CAO rules require permitted facilities to inventory air toxics emissions from their processes, and assess risks from these emissions to nearby communities. If risks exceed the allowable levels established in the CAO rule, DEQ will require facilities to take action to reduce those risks.

In March 2019, DEQ released the results of a prioritization process and identified the first group of regulated facilities that will have their air emissions evaluated in detail to determine the potential health risks from air toxics. DEQ used the following criteria in selecting the first group of facilities: initial emissions inventory and census data, types of emissions and control devices at the facility, and the quality of the emissions data supplied by the regulated facility. DEQ created four tiers/groups of facilities to evaluate in sequence. The first tier group consists of 20 facilities that DEQ selected to evaluate in 2019 includes Owens-Brockway. Furthermore, the Owens-Brockway facility was one of six facilities in the first group called in to begin the assessment process.

DEQ's initial analysis to identify the first group of facilities to evaluate did not involve a rigorous health risk assessment and does not reflect any conclusion about actual risk. The actual health risk will be determined when DEQ completes the risk assessment of air toxics emissions from the Owens facility, which is currently in progress.

Earthjustice Comments

I. Background

2. The Title V permit must be renewed every five years. The facility is currently operating under a Title V permit that expired in 2012. DEQ's more than five-year delay in renewing the Title V Permit allowed Owens-Brockway to operate under a permit that lacks conditions needed to assure compliance with all applicable requirements. Outdated permits increase the risk that facilities are not operating according to the latest air quality requirements and standards.

DEQ Response: All Title V permits are issued with the 5-year term. However, the permit does not automatically expire after 5 years. The permit remains in effect until DEQ takes final action on the renewal application.

Owens-Brockway is not shielded from the ("latest") applicable requirements that are enacted during the permit term. National Emissions Standard for Hazardous Air Pollutants (NESHAP) subpart SSSSSS (6S) became applicable during the permit term. December 28, 2009 was the compliance date for meeting the applicable HAP limit of "0.02 lbs HAP/ton glass". Owens performed a source test on December 9, 2008 and determined the production-based metal HAP emissions from furnace GM4 to be 6.6 $x10^{-4}$ lbs/ton glass produced, which was well below the subpart 6S HAP limit. Owens performed additional source test on May 15 through 23, 2019, and the test results submitted on July 29, 2019 indicates the production-based metal HAP (i.e., Chromium) emissions from furnace GM4 to be 3.3 $x10^{-4}$ lbs/ton glass produced.

DEQ recently adopted Cleaner Air Oregon (CAO) rules. In addition to chromium, other metal HAPs including arsenic, lead, and cadmium are identified in OAR 340-245-8020 Table 2 as Toxic Air Contaminants. DEQ will evaluate the health risk associated with air toxics emissions under CAO rules. See DEQ response No.1.

3. Hazardous Air Pollutants emitted from the facility are troubling to the neighboring community. Owens-Brockway emitted more than 400 pounds of lead, 22 pounds or arsenic, and 213 pounds of chromium. The facility represents one of the largest sources of lead air pollution in Oregon.

DEQ Response: Lead (Pb) is regulated as one of the criteria pollutants with National Ambient Air Quality Standard (NAAQS). Environmental Protection Agency (EPA) initially set the NAAQS for lead in 1978 to 1.5 $\mu g/m^3$ and then tightened the Pb-NAAQS to 0.15 $\mu g/m^3$ in January of 2009. DEQ monitors ambient air concentration of lead and the measured lead concentration in Portland air shed is 0.003 $\mu g/m^3$ (about 2% of the NAAQS). Lead levels in the Portland airshed are well below the National standard. The existing permit caps lead emissions from this facility at 1,000 pounds per year, which is the generic level for lead.

DEQ recently adopted Cleaner Air Oregon (CAO) rules. In addition to lead, the CAO rules, OAR 340-245-8020 Table 2 identifies all other metal HAPs that are Toxic Air Contaminants. DEQ is currently evaluating the health risk associated with all suspected air toxics emissions from Owens Brockway. See DEQ response No.1.

4. There is also concern with high concentrations of toxic heavy metals like cadmium and arsenic surrounding two glass manufacturers as determined from the Portland Moss and Air Quality study conducted by the US Forest Service in 2016. Owens's reported air toxics emissions to DEQ (for CAO emissions inventory) are not reflective of the actual amount of pollutants emitted. The Portland moss study conducted in 2016 found high concentration of toxic heavy metals like cadmium and arsenic in the neighborhoods surrounding two glass manufacturers (e.g., Bullseye Glass).

DEQ Response: The Owens plant manufactures container glass (for food/beverage industry) made from natural raw materials including sand, soda ash, and limestone, and recycled glass (i.e., cullet). Owens does not add additional arsenic or cadmium to their glass batch like art-glass manufacturers cited in the Portland moss study.

As mentioned in DEQ response 1, Cleaner Air Oregon rules were developed to assess the health effect of air toxics emissions that include metal HAPs such as cadmium and arsenic, and all other suspected air toxics. DEQ is currently evaluating the air toxics emissions from the Owens-Brockway facility and will assess associated health risk to nearby communities.

III. Permit Deficiencies

A. The draft permit fails to require monitoring sufficient to assure compliance with 40 CFR Part 60, subpart CC (New Source Performance Standard for Glass Manufacturing Plants).

5. DEQ must expressly state what the (NSPS Opacity) limit is and expressly mandate that the facility meet that limit.

DEQ Response: The NSPS subpart CC sets the Particulate Matter (PM) limit but it does not assign a specific value to the opacity limit. However, the (draft) permit expressly mandates that Owens meet the 20 percent (%) opacity limit specified in Condition 17. The 20% opacity limit specified in the permit is a federally enforceable limit. The Continuous Opacity Monitoring System (COMS) required by NSPS subpart CC measures the opacity value from all furnace stacks continuously.

6. The permit does not actually identify the applicable (NSPS) opacity limit, and it also does not clearly specify the compliance determination method.

DEQ Response: See DEQ response No. 5. The NSPS subpart CC specifies the PM standard, and requires continuous opacity monitoring system (COMS) to measure visible emissions (i.e., opacity values). While the opacity values are not a direct measurement of PM emissions, they function as an indicator of PM emissions. While the continuous PM monitoring device does not exist, the COMS technology is available to measure the opacity values continuously.

7. DEQ is required to add periodic testing and monitoring requirements in the permit that are sufficient to assure the facility's compliance with the Glass Manufacturing NSPS.

DEQ Response: The permit sets the NSPS PM limit of "1 lbs PM/ton glass manufactured" and requires PM testing (every 5 years) to determine compliance with that PM limit. The opacity value that correlates to the PM emissions rate (< limit) from each furnace is also established during testing, and COMS are used to measure the opacity value continuously. See DEQ response 5 and 6.

8. The PM testing requirement of “once during the permit term” is insufficient to assure compliance with the NSPS PM limit. DEQ’s history of allowing the permittee to operate under an “expired” permit for many years magnifies the effect.

DEQ Response: DEQ recognizes unintended consequences of the delay in re-issuing the permit. The revised (draft) permit conditions 13, 21 and 35 now explicitly require the permittee to perform source testing every 5 years as originally intended regardless of the permit status. A phrase – “within 6 months from the date of this permit issuance” in (draft) permit has been revised to read – “within 5 years from the date of the last source test”.

9. Other states require substantially more frequent [PM] testing to confirm the opacity limit that correlates with the NSPS PM limit. For example, Title V permit issued by Puget Sound Clean Air Agency for Ardagh Glass Inc.’s Seattle facility, Permit No. 11656, requires quarterly glass furnace PM emission tests.

DEQ Response: The NSPS subpart CC does not specify the PM source testing frequency. Each state has their own unique air quality regulations and need that can affect the permit requirements. There are also other factors including air pollutant-specific attainment status of the facility location, construction/modification date, New Source Review (NSR) or Prevention of Significant Deterioration (PSD) applicability and subsequent control requirements (e.g., BACT). For example, Ardagh Glass in Seattle was cited for violations of PSD rules, and they are required to perform frequent source testing as part of the consent decree with the US Department of Justice resolving their alleged PSD violations.

B. The draft permit fails to assure compliance with the PM limit required by Oregon’s federally enforceable State Implementation Plan.

10. The facility’s two furnaces are subject to a PM limit of 0.10 grain per dry standard cubic foot of OAR 340-228-0210. DEQ must add annual source testing combined with parametric monitoring to assure compliance with the 0.10 gr/dscf limit, and provide a reasonable explanation in the permit review report for the adequacy of established monitoring.

DEQ Response: Both the production based NSPS PM limit and the grain loading limit are the PM emissions standards. See DEQ responses No. 5 to 8 for the way continuous visible emissions monitoring by COMS is used as parametric monitoring.

The NSPS source testing utilizes EPA Method 5 that measures filterable PM only. In addition to EPA method 5, the (draft) permit also includes DEQ Method 5 to include condensable PM to determine compliance with the 0.10 gr/scf limit specified in the (draft) permit. The PM test results from source test performed on May 15-23, 2019 indicate the grain loading rates from the glass melting furnaces A and D were 0.03 and 0.12 gr/dscf respectively, in compliance with the existing 0.1 gr/scf limit based on 1-significant figure.

C. The draft permit unlawfully excludes metal HAP emissions caused by sources other than "Metal HAP added to the Process" from the applicable HAP emission limit under NESHAP subpart 6S.

11. Under DEQ's interpretation (of NESHAP subpart 6S), Owens-Brockway can disregard HAP emissions from other sources when determining whether it is complying with the 0.02 lbs HSP/ton glass limit. This interpretation contravenes the 6S regulations and has the potential to expose residents near the Owens-Brockway plant to unsafe levels of metal HAP pollution.

DEQ Response: National Emission Standards for Hazardous Air Pollutants (NESHAP) for Glass Manufacturing Area Sources, subpart 6S, is applicable to furnace GM4 that intentionally adds iron chromite to the glass batch when green glass is produced. The metal HAPs regulated under NESHAP subpart 6S are arsenic, chromium, cadmium, lead, manganese, and nickel. Iron chromite (colorant) added to furnace GM4 contains chromium but not the other five metal HAPs listed in subpart 6S.

The metals that are naturally occurring as trace constituents or contaminants of other substances are not considered raw materials as defined in §63.11459. Cullet and materials that are recovered from the process stream and recycled/reused into the glass formulation are not considered raw materials.

Emissions from furnace GM4 must comply with 0.02 lbs of metal HAPs per ton of glass produced. According to 40 CFR Part 63.11452(b)(14)(ii), only the metal HAP added to the process (i.e., Cr) is subject to the 0.02 metal HAP (i.e., glass manufacturing metal HAPs) standard. Source test performed on May 15 through 23, 2019 indicates the production-based metal HAP emissions (i.e., Cr) from furnace GM4 to be 3.3 $x10^{-4}$ lbs/ton glass produced. For information purpose only, a total combined (i.e., all 6 metals) emissions from furnace GM4 was 7.48 $x10^{-3}$ lbs/ton glass produced, still less than the standard.

As discussed in DEQ response No.3, the NESHAP standards regulating HAP emissions are technology based standards and they do not evaluate health risk associated with HAP emissions. DEQ will evaluate the health risk associated with air toxics emissions under CAO rules. See DEQ response No.1.

12. Owens-Brockway uses chromium brick in its refractory and chromium emissions may come from the refractory.

DEQ Response: The glass contact surfaces of the furnace throat section use bricks containing chromium because they last longer. Regardless of the sources of chromium, whether it comes from raw materials or from degradation of furnace refractory, all chromium emissions captured by source testing will be considered in the compliance determination with respect to the 0.02 lbs HAP/ton glass limit and the CAO risk assessment. The initial compliance source testing performed by Owens in 2008 determined the total chromium emissions from furnace GM4 to be 6.6 x 10^{-4} lbs Cr/ton glass, much less than the 6S standard of 2 x 10^{-2} lbs Cr/ton.

13. The chromium testing schedule in the permit avoids testing close to the end of a furnace campaign when chromium emissions are expected to be the highest.

DEQ Response: The permit requires chromium testing to be performed at least once every 5 years, which will determine the chromium emissions over the course of the furnace campaign, which usually last more than 10 years. DEQ will have more opportunity to test and evaluate the chromium emissions data throughout the furnace D campaign to ensure they meet the NESHAP 6S standard.

Furnace D was re-bricked in August 2016. The chromium test results from source test performed on May 15-23, 2019 indicates the chromium emissions from furnace GM4 to be 3.3 x 10^{-4} lbs/ton, about 60 times less than the NESHAP 6S standard of 2 x 10^{-2} lbs Cr/ton. Furnace A is nearing its campaign life and the 2019 test result indicates the chromium emissions from GM1 to be be 6.6 x 10^{-4} lbs/ton, about 30 times less than the NESHAP 6S standard. The (draft) permit requires Cr testing every 5 years to evaluate Cr emissions, and the next testing must be performed prior to May 15, 2024, followed by another testing prior to May 15, 2029.

14. DEQ should require that Owens-Brockway separately determine the highly dangerous hexavalent chromium from total chromium.

DEQ Response: The permit source testing condition 35 requires verification of all metal HAPs regulated by the NESHAP subpart 6S, including chromium. The permit source testing condition (No. 35) regards all chromium detected using EPA Method 29 to be considered hexavalent chromium unless Owens-Brockway determines otherwise via EPA SW-486 Method 0061 and isolate hexavalent chromium from the total.

The NESHAP subpart 6S regulations do not distinguish different valance states of chromium, and there is no legal basis for requiring the separation. However, the chromium-testing requirement as written in permit condition 35 directs Owens to separate the hexavalent chromium from the total.

The chromium test results from source test performed on May 15-23, 2019 became available on July 29, 2019. The hexavalent Cr^6 emissions rate from the furnace GM4 was determined to be 2.69 x 10^{-7} lbs/ton of glass manufactured. The hexavalent Cr^6 emissions rate from the furnace GM1 was determined to be 1.59 x 10^{-6} lbs/ton. The 2019 testing performed on both furnaces indicates hexavalent chromium emissions are much less than 1% of the total chromium emissions. The CAO rules will evaluate the risk associated with the more toxic hexavalent chromium, as discussed in DEQ response No.1.

D. The draft permit lacks adequate conditions to assure compliance with the fugitive dust control requirement.

15. Draft permit condition 6 requires Owens to take “reasonable precautions” to control fugitive dust. The condition fails to provide sufficient specificity regarding what Owens must do to control fugitive dust, and they are insufficient to “assure compliance” with OAR 340-208-0210.

DEQ Response: OAR 340-208-0210 considers fugitive emissions to be visible emissions (e.g., dust) that leaves the facility by crossing the property boundary for a period or periods totaling more than 18 seconds in a six-minute period following the procedures of EPA Method 22. Facilities with a large footprint can have activities that create localized visible emissions that are contained within the plant boundary and therefore are not considered fugitive emissions.

The fugitive dust control requirements specified in condition 6 paraphrases and references OAR 340-208-0210. The monitoring requirements specified in condition 7 are more effective than narrowly defining what the fugitive emissions are. As stated in condition 7.b, any visible emissions present (inside the plant) requires corrective action.

For example, during the facility inspection conducted by DEQ on June 28, 2016, several deficiencies in the raw materials handling and processing areas were cited, although no visible emissions were detected during the inspection. However, potential problem areas (e.g., broken windows, gaps in duct works, material chute-opening) were identified that could potentially result in fugitive emissions. DEQ issued a warning letter (2016-WLOTC-1748) requesting

Owens to fix all potential problems and Owens complied. Owens letter dated 09/14/2016 summarizes the corrective actions Owens performed in response to the warning letter.

E. The draft permit fails to assure compliance with the facility's general duty to prevent accidental releases under Clean Air Act 112(r)(1).

16. Review report states that the facility uses significant amount of certain toxic and flammable substances including methane, propane, ammonia, and nickel.

Title V permit must require Owens-Brockway to (1) identify the hazard that may result from accidental release; (2) take steps to ensure the facility is designed and maintained to prevent release; and (3) develop procedures to minimize the consequences of any accidental release that could occur.

DEQ Response: Oregon DEQ is responsible for requiring the Title V permitted source to verify if the source has registered and submitted a Risk Management Plan (RMP) to EPA. Permit condition 11 requires the permittee to submit a risk management plan by the date specified in 40 CFR 68.10. The trigger date is the date by which a regulated substance is first present above a threshold quantity in a process.

According to 40 CFR 68.126, flammable substances (e.g., methane, propane) used as fuel are excluded from all provisions of part 68.

As discussed in item 19 of permit review report, Owens-Brockway has not triggered the RMP requirements of part 68.

F. Additional Permit Deficiencies

17. The draft permit condition No. 24 (PM standard for fuel-burning equipment and boiler) must identify the definitive PM limit.

DEQ Response: In 2015 DEQ revised the grain loading standards specified in OAR 340-228-0210 to increase the significant figure from one to two. The draft permit condition 24 contains several grain loading limits to reflect this recent DEQ rule change. Revised rule specifies multiple grain loading limits with multiple trigger criteria. Based on these new criteria, the grain loading limits for both EU6 and EU7 are 0.24 gr/scf until 12/31/2019; and 0.15 gr/scf on and after 1/1/2020.

18. The draft permit condition 24 fails to establish monitoring, recordkeeping, and reporting requirements that are sufficient to assure compliance with the applicable PM (e.g., 0.24 gr/scf) limit.

DEQ Response: Natural gas composed primarily of methane is the cleanest of all fossil fuels, and the main combustion byproducts of natural gas are carbon dioxide and water vapor. The PM emissions primarily result from incomplete combustion, primarily from burning solid (e.g., coal) or liquid (e.g., oil) fuel that are composed of much more complex molecules. Both EU6 and EU7 burn natural gas only (e.g., colorless methane) that produces virtually no ash or particulate matter (PM).

In many cases, visible emissions monitoring is used to provide a reasonable assurance of compliance with PM standards such as the grain loading limit. Natural gas fired EU6 and EU7 equipment do not generate visible emissions other than condensed water vapor. Note that both EU6 and EU7 have annual PM emissions pf 0.13 and 0.06 tons respectively. These units are

low PM emitting units that have no visible emissions. The monitoring for such low PM emitting units with no visible emissions would track the type of fuel burned.

The requirement to establish monitoring, recordkeeping, and reporting sufficient to assure compliance with the applicable standards/limits does not require the permit to impose the same level of rigor with respect to all emissions units and applicable requirement situations. It does not require extensive testing or monitoring to assure compliance with the applicable requirements for emissions units that do not have significant potential to violate emission limitations or other requirements under normal operating conditions. Where compliance with the underlying applicable requirement for an insignificant emission unit is not threatened by a lack of a regular program of monitoring and where periodic testing or monitoring is not otherwise required by the applicable requirement, the status quo (i.e., no monitoring) meets the federal monitoring requirements of section 70.6(a)(3)(i).

19. The draft permit condition No. 28 (PM standard for baghouses), like condition 24, fails to identify applicable emission limit, and also authorizes alternative method approved by DEQ.

DEQ Response: As with the natural gas fired EU6 and EU7 equipment discussed in DEQ response No. 18, the applicable grain loading limits for all baghouses are 0.24 gr/scf until 12/31/2019; and 0.15 gr/scf on and after 1/1/2020. All other non-applicable grain loading limits (e.g., 0.080 or 0.10 gr/scf) will be omitted for clarification purposes.

Again, visible emissions monitoring specified in Condition 30 is used to determine compliance with the grain loading limits specified in condition 28. An alternative method cited in condition 28 is a reference to one of the compliance determination methods provided in OAR 340-226-0210 (3). DEQ has the authority to review and approve alternative compliance methods if deemed appropriate.

20. The draft permit condition No. 30 (Monitoring and Recordkeeping relating to visible emissions from fuel-burning equipment, boiler, and baghouses) fails to specify when the (weekly) frequency begins.

DEQ Response: The visible emissions monitoring specified in condition 30 carries over from the current permit term to the next. The monitoring protocols are set up in a progressive manner pending outcome of the monitoring. Historically none of the process equipment showed any visible emissions in the past. See DEQ response No. 21 below for continued discussion on monitoring.

21. The condition must specify the facility has to perform the required Method 9 test.

DEQ Response: As long as there are no visible emissions from the applicable equipment, as determined by Method 22, Method 9 is not triggered. As explained in DEQ response 20, natural gas burning equipment (e.g., oven stack) and baghouses did not show any visible emissions in the past; and therefore Method 9 was not triggered. As previously mentioned in DEQ response 18, the requirement to establish monitoring, recordkeeping, and reporting sufficient to assure compliance with the applicable standards/limits does not require the permit to impose the same level of rigor with respect to all emissions units and applicable requirement situations.

22. For RMBH2 and HEST-A baghouse, the permit requires the facility to monitor and record the pressure drops on a daily basis but it fails to identify the pressure drop range that correlates with compliance. DEQ must also require Owens to test these baghouse periodically to confirm acceptable pressure drop ranges.

DEQ Response: RMBH2 and HEST-A are two main baghouses that Owens operates. The visible emissions limit of 20% opacity and the 0.24 gr/scf limit are the regulatory requirements that apply to these baghouses. Historically the baghouse never showed any visible emissions. The pressure drop range does not correlate to visible emissions or the grain-loading rate. The pressure drop readings that fall outside the pre-determined range do not necessarily mean non-compliance with the applicable limit. The pressure drop monitoring serves as an early warning/indicator to warrant further action – a signal to investigate whether preventive maintenance (e.g., change bags) is necessary, and then follow up with the maintenance work if needed.

The (draft) permit condition 30.h requires daily monitoring of pressure drop readings and any maintenance or repair works performed. The (draft) permit condition 30 has been expanded to include a periodic preventive maintenance requirement - change the bags annually even if pressure drop remains within normal operating range.

23. The source testing frequency of draft permit condition 35 (Furnace EF verification) needs to be increased from "once during the permit term" to every year.

DEQ Response: The Portland facility (Plant No.21) was built in 1956 and it has been manufacturing container glass ever since. The furnace GM1 was enlarged in 1983 and the furnace GM4 was converted to a gas-fired regenerative furnace in 1986. The glass manufacturing process and the raw materials usage remained relatively unchanged over the years. The emissions detail sheets contain all the previous source test (EF verification) results. DEQ has determined the source testing frequency of every 5 years to be adequate for the EF verification purpose. DEQ also monitors any change in the glass melting processes and/or raw materials usage and will require more frequent source testing if deemed necessary.

IV. DEQ should require installation of controls on both furnaces A and D.

DEQ Response: On August 3, 2018. DEQ sent a letter to Owens requesting that they consider the installation and use of pollution control devices to reduce air pollutant emissions associated with the glass manufacturing process. While DEQ urged Owens to consider additional controls for the protection of public health and the environment, the Owens facility currently meets all applicable air quality regulations without added control. Once DEQ completes the risk assessment of air toxics emissions from the Owens facility, DEQ will reassess the requirements to install additional emission controls pending outcome. See DEQ response 1.

V. Commenters support the draft permit condition requiring Owens-Brockway to perform comprehensive metal HAP testing and urge DEQ to require additional and more comprehensive testing**.**

DEQ Response: The (draft) permit requires comprehensive metal HAP testing every five years. DEQ will require additional testing if deemed necessary.